

# BAS16LT1

Preferred Device

## Switching Diode

### Features

- Pb-Free Packages are Available

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Continuous Reverse Voltage	$V_R$	75	Vdc
Peak Forward Current	$I_F$	200	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	500	mAdc

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS

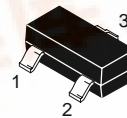
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

1. FR-5 =  $1.0 \times 0.75 \times 0.062$  in.

2. Alumina =  $0.4 \times 0.3 \times 0.024$  in. 99.5% alumina.

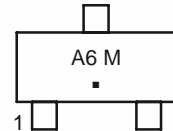


ON Semiconductor®

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SOT-23  
CASE 318  
STYLE 8

### MARKING DIAGRAM



A6 = Specific Device Code  
M = Date Code  
■ = Pb-Free Package

### ORDERING INFORMATION

Device	Package	Shipping†
BAS16LT1	SOT-23	3000/Tape & Reel
BAS16LT1G	SOT-23 (Pb-Free)	3000/Tape & Reel
BAS16LT3	SOT-23	10000/Tape & Reel
BAS16LT3G	SOT-23 (Pb-Free)	10000/Tape & Reel

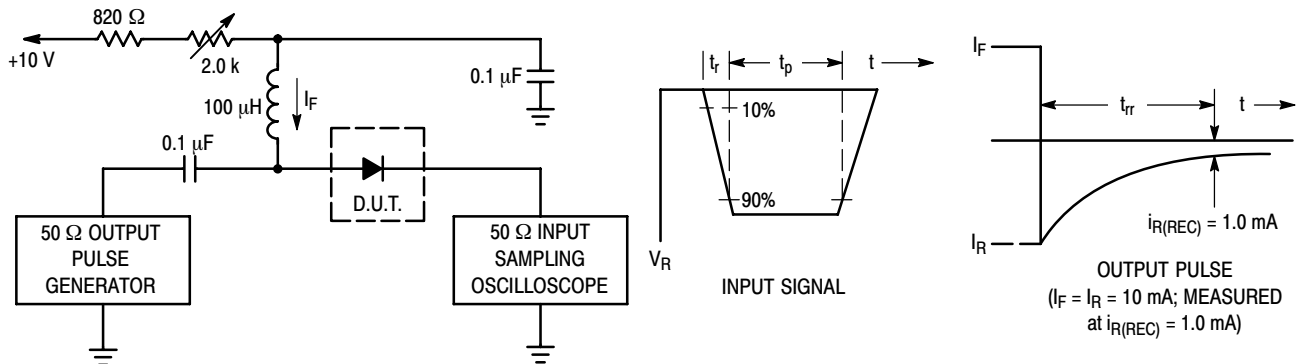
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

**Preferred** devices are recommended choices for future use and best overall value.

# BAS16LT1

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Reverse Voltage Leakage Current ( $V_R = 75\text{ Vdc}$ ) ( $V_R = 75\text{ Vdc}$ , $T_J = 150^\circ\text{C}$ ) ( $V_R = 25\text{ Vdc}$ , $T_J = 150^\circ\text{C}$ )	$I_R$	–	1.0 50 30	$\mu\text{Adc}$
Reverse Breakdown Voltage ( $I_{BR} = 100\text{ }\mu\text{Adc}$ )	$V_{(BR)}$	75	–	Vdc
Forward Voltage ( $I_F = 1.0\text{ mAdc}$ ) ( $I_F = 10\text{ mAdc}$ ) ( $I_F = 50\text{ mAdc}$ ) ( $I_F = 150\text{ mAdc}$ )	$V_F$	–	715 855 1000 1250	mV
Diode Capacitance ( $V_R = 0$ , $f = 1.0\text{ MHz}$ )	$C_D$	–	2.0	pF
Forward Recovery Voltage ( $I_F = 10\text{ mAdc}$ , $t_r = 20\text{ ns}$ )	$V_{FR}$	–	1.75	Vdc
Reverse Recovery Time ( $I_F = I_R = 10\text{ mAdc}$ , $R_L = 50\text{ }\Omega$ )	$t_{rr}$	–	6.0	ns
Stored Charge ( $I_F = 10\text{ mAdc}$ to $V_R = 5.0\text{ Vdc}$ , $R_L = 500\text{ }\Omega$ )	$Q_S$	–	45	pC



- Notes: 1. A 2.0 k $\Omega$  variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
 2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.  
 3.  $t_p \gg t_{rr}$

**Figure 1. Recovery Time Equivalent Test Circuit**

## BAS16LT1

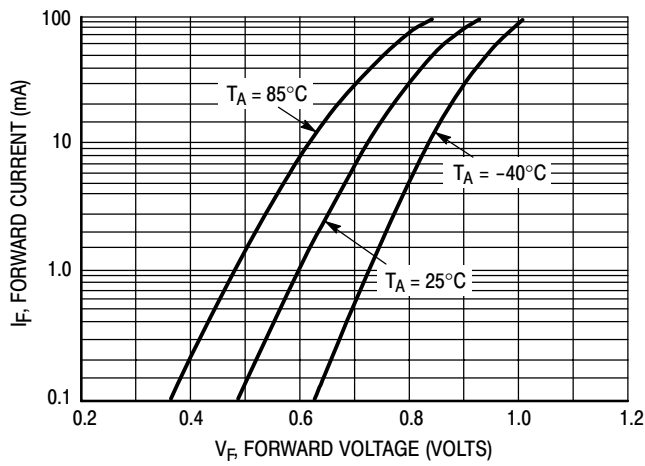


Figure 2. Forward Voltage

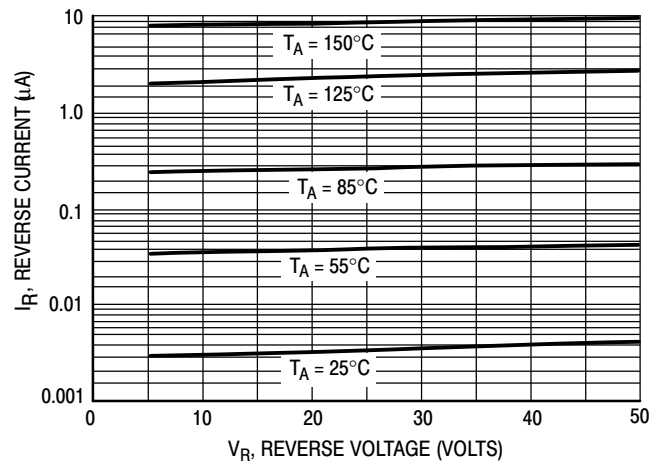


Figure 3. Leakage Current

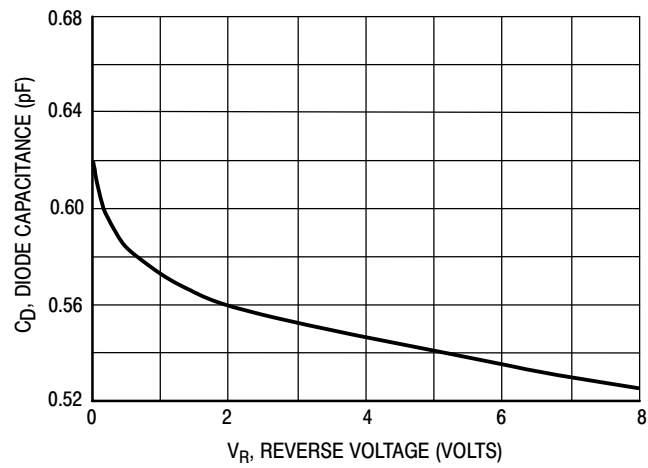
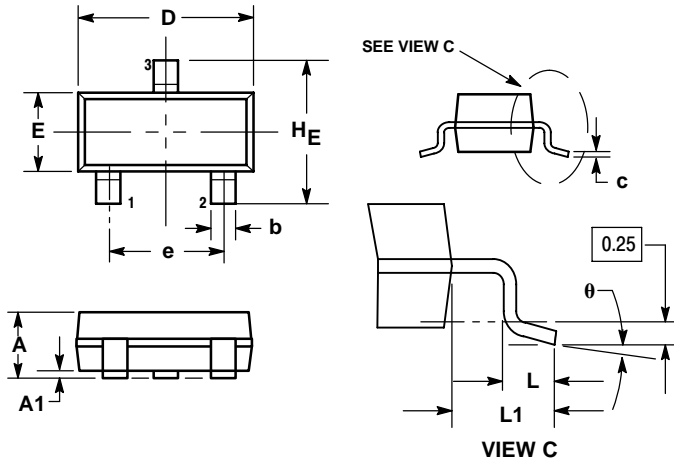


Figure 4. Capacitance

# BAS16LT1

## PACKAGE DIMENSIONS

**SOT-23 (TO-236)]**  
**CASE 318-08**  
**ISSUE AN**

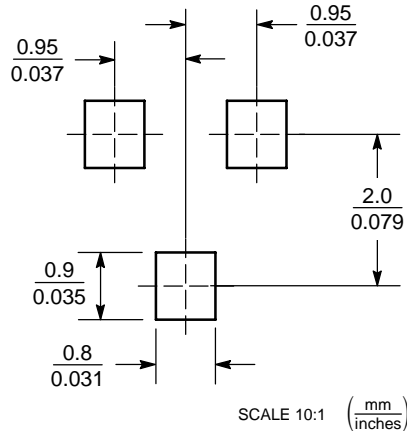


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
  4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104

STYLE 8:  
 PIN 1. ANODE  
 2. NO CONNECTION  
 3. CATHODE

## SOLDERING FOOTPRINT\*



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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